# General Designed Capabilities


**Your oscilloscope is the newest version of a series that set the standard for monochrome DSOs (Digital Storage Oscilloscopes). Each of the scope's channels has an 8-bit ADC (Analog–to–Digital Converter). On the higher-range models, combining two channels doubles the scope's sampling rate. While on high-range, four-channel models, combining all channels increases the original rate by four times.**

**Processors**

The central microprocessor performs the scope's computations and controls its operation. A wide range of peripheral interfaces allow remote control, storage and printing. A support processor constantly monitors the front-panel controls, rapidly reconfiguring setups. Data processing is also rapid, with data being transferred to the display memory for direct waveform display or stored in the reference memories (*see below*).

> ***Note:*** *Wherever a feature is specific to a particular model, or not included with a model, it is indicated thus:*
> 9314C ONLY*, for example.*
> ***For the complete list of specifications for each model, see the section on that model or its series in Appendix A.***

**ADCs**

The instrument's multiple-ADC architecture ensures absolute amplitude and phase correlation, maximum ADC performance for multi-channel acquisitions, large record lengths and excellent time resolution.

**Memories**

The copious acquisition memories simplify transient capture by producing long waveform records that capture even when trigger-timing or signal-speed is uncertain. Combining channels also increases the acquisition memory length. There are four memories for temporary storage, and four more for waveform zooming and processing.

**RIS**

Repetitive signals can be acquired and stored at a Random Interleaved Sampling (RIS) rate of 10 GS/s. RIS is a high-precision digitizing technique that enables measurement of repetitive signals to the instrument's full bandwidth, with an effective sampling interval of 100 ps and measurement resolution of 10 ps. (*See Chapter 7*).

**Trigger System**

The Trigger System offers an extensive range of capabilities, selected according to the character of the signal, using on-screen menus and front-panel controls. In standard trigger mode these menus and controls enable the selection and setting of parameters such as pre- and post-trigger recording, as well as special modes. The trigger source can be any of the input channels, line (synchronized to the scope's main input supply) or external. The coupling is selected from AC, LF REJect, HF REJect, HF, and DC; the slope from positive and negative. (*See Chapter 8.*)

**Automatic Calibration**

The oscilloscope's automatic calibration ensures an overall vertical accuracy of typically 1% of full scale. Vertical gain and offset calibration take place each time the volts/div setting is modified. In addition, periodic calibration is performed to ensure long-term stability at the current setting.

**Display System**

The display's interactive, user-friendly interface is controlled by push-buttons and knobs (*see Chapter 4*).

The large, 12.5 × 17.5 cm (nine-inch diagonal) screen shows waveforms and data with enhanced resolution on a variety of grid styles (s*ee Chapter 11*). Up to four waveforms can be displayed at once, while the parameters controlling signal acquisition are simultaneously reported. The screen presents internal status and measurement results, as well as operational, measurement, and waveform-analysis menus.

Printing or copying the screen on plotter, printer or to a recording medium is done by pressing the front-panel SCREEN-DUMP button(*See Chapter 12*).

## Manual or Remote Control

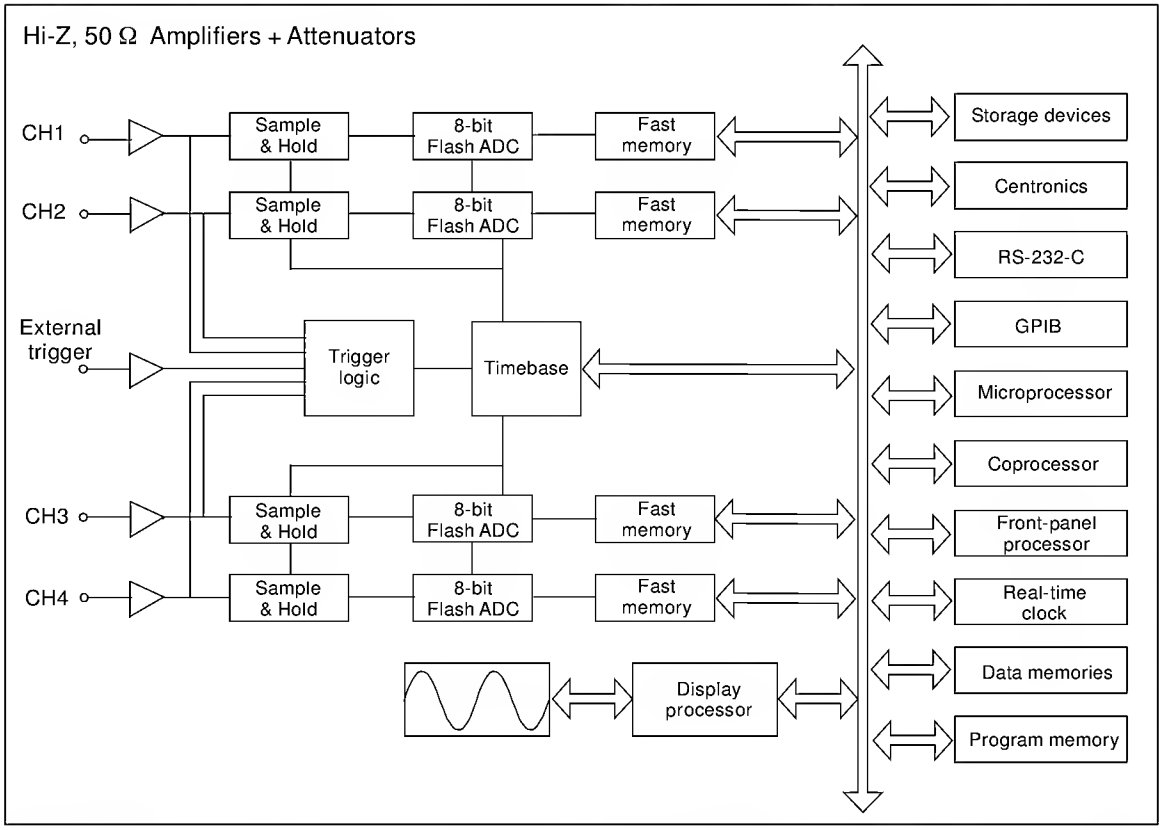
Despite being a truly digital instrument, the scope has a front-panel layout and controls that will be familiar to users of analog oscilloscopes. Rapid instrument response and instant representation of waveforms on the high-resolution screen add to this impression.

Four front-panel setups can be stored internally and recalled either manually or by remote control, thus ensuring rapid front-panel configuration. When the power is switched off, the current front-panel settings are automatically stored for subsequent recall at the next power-on.

The oscilloscope has also been designed for remote control operation in automated testing and computer-aided measurement applications — operations described in the *Remote Control Manual*. The entire measurement process, including cursor and pulse-parameter settings, dynamic modification of front-panel settings, and display organization, is controlled through the rear-panel GPIB (IEEE-488) and RS-232-C ports (*see Chapter 12*).

# Block Diagrams

## ➢ *9304C, 9310C, 9314C Series*



- ***9344C, 9350C, 9354C Series***
- ***9370C, 9374C Series***
- ***9384C Series***